

### **REMARKS**

Claims 2 through 7, 9-11, and 13-23 are now pending in the application. Claims 7, 13 and 16 are withdrawn. Claims 1, 8 and 12 are herein canceled. Claims 22 and 23 are herein added. Claims 2-4, 6, 9-11, 14, 15 and 17-19 are herein amended. The Examiner is respectfully requested to reconsider and withdraw the rejections in view of the amendments and remarks contained herein.

### **REJECTION UNDER 35 U.S.C. § 112**

Claims 1 through 6, 8 through 12, 14, 15, and 17 through 21 stand rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point and distinctly claim the subject matter which Applicant regards as the invention. This rejection is respectfully traversed.

Applicants note Claims 1, 8 and 12 are herein canceled rendering the 35 U.S.C. § 112, second paragraph rejection of these Claims moot. Applicants have amended Claims 2-4, 6, 9-11, 15 and 17-19 to overcome the 35 U.S.C. § 112, second paragraph rejection of these Claims. Claim 17 has been amended to include elements to maintain the various fuel rods and water passages in their indicated disposed relationship to each other and to the channel. The Examiner noted Claims such as Claims 1 and 17 are vague, indefinite and incomplete as to what all is meant by and is encompassed by the reference to a "water passage". Applicants have added limitations to appropriate Claims to note the water passages are each defined as a tube. Applicants further note the term "adjacent" has in general been replaced by "proximate" or "proximately" having a general meaning of "next or nearest in space" as defined in Webster's New World

College Dictionary, Fourth Edition, 2001. The Examiner is respectfully requested to withdraw the 35 U.S.C. § 112, second paragraph rejection of Claims 2 through 6, 9 through 11, 14, 15, and 17 through 21.

**REJECTION UNDER 35 U.S.C. § 102**

Claims 1 through 6, 8 through 12, 14, 15, 17 through 21 stand rejected under 35 U.S.C. § 102(b) as being anticipated by any of Orie et al. (U.S. Pat. No. 6,735,267), Koyama et al. (U.S. Pat. No. 6,335,956), or Aoyama et al. (U.S. Pat. No. 5,432,829). This rejection is respectfully traversed.

It is initially noted Claims 1, 8 and 12 are herein canceled, rendering the 35 U.S.C. § 102(b) rejection of Claims 1, 8 and 12 moot.

New Claim 22 in part recites the limitations of:

“the part-length rods distributed in two rod groups including:

a first rod group having two sub-groups each having three part-

length rods arranged in a triangular-shape, each sub-group

positioned proximate to each of the fluid passages; and

a second rod group having part-length rods each positioned within

and proximate to the perimeter wall, the second rod group

including a plurality of pairs of proximately arranged part-

length rods”.

None of the references of Orie et al., Koyama et al., or Aoyama et al. disclose a first rod group having two sub-groups each having three part-length rods arranged in a triangular-shape, therefore none of the references of Orie et al., Koyama et al., or

Aoyama et al. anticipate new Claim 22. Claim 22 should therefore be in condition for allowance. Claims 2-6 have been amended to depend from new Claim 22 and should also therefore be in condition for allowance. The Examiner is respectfully requested to withdraw the 35 U.S.C. § 102(b) rejection of Claims 2-6.

New Claim 23 in part recites the limitations of:

“the part-length fuel rods being separable into two rod groups, including:

a first rod group having two sub-groups each including three part-

length rods arranged in a triangular-shape, the two sub-

groups positioned proximate to each other and proximate to

a longitudinal centerline of the fuel bundle; and

a second rod group having part-length fuel rods each positioned

proximate to the perimeter wall, the second rod group being

divisible into a plurality of pairs of proximately positioned

part-length rods”.

None of the references of Orii et al., Koyama et al., or Aoyama et al. disclose a first rod group having two sub-groups each including three part-length rods arranged in a triangular-shape, the two sub-groups positioned proximate to each other and proximate to a longitudinal centerline of the fuel bundle, therefore none of the references of Orii et al., Koyama et al., or Aoyama et al. anticipate new Claim 23. Claim 23 should therefore be in condition for allowance. Claims 9-11, 14 and 15 now depend from new Claim 23 and should therefore be in condition for allowance. The Examiner is respectfully requested to withdraw the 35 U.S.C. § 102(b) rejection of Claims 9-11, 14 and 15.

Claim 17 has been amended to recite in part:

“a channel having four interior walls and a proximately positioned pair of  
water passages each defining a tube rigidly supported to the  
channel;

a plurality of full-length fuel rods rigidly supported within the channel, the  
full-length fuel rods generally disposed face-to-face in column/row  
alignment, including a first set proximately positioned at the four  
interior walls, and a second set separated from the four interior  
walls by the first set;

a plurality of first subgroups each having two proximately positioned part-  
length fuel rods, each first subgroup disposed adjacent one of the  
four interior walls and interposed with the first set of full-length fuel  
rods;

a pair of second sub-groups of part-length fuel rods each second sub-  
group positioned proximate to both the water passages ; and  
each of the second sub-groups of part-length fuel rods including three  
part-length fuel rods configured in a triangle shape;

wherein any of the part-length fuel rods of the first sub-groups are spatially  
separated from any of the part length fuel rods of the second sub-  
groups by at least two of the full-length rods.”

None of the references of Orii et al., Koyama et al., or Aoyama et al. disclose part length fuel rods disposed in a plurality of first sub-groups each having two proximately positioned part-length fuel rods, each first subgroup disposed adjacent one of the four

interior walls of a channel and interposed with the first set of full-length fuel rods, and a pair of second sub-groups each having three part-length fuel rods, where the second sub-groups are positioned proximate to each of two water passages, and wherein any of the part-length fuel rods of the first sub-groups are spatially separated from any of the part length fuel rods of the second sub-groups by at least two of the full-length rods, as recited in amended Claim 17.


None of the references of Orii et al., Koyama et al., or Aoyama et al. therefore anticipate amended Claim 17. The Examiner is respectfully requested to withdraw the 35 U.S.C. § 102(b) rejection of Claim 17. Because Claims 18-21 depend from amended Claim 17, none of the references of Orii et al., Koyama et al., or Aoyama et al. anticipate Claims 18-21 for at least the same reasons. The Examiner is respectfully requested to withdraw the 35 U.S.C. § 102(b) rejection of Claims 18-21.

### CONCLUSION

It is believed that all of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. Applicant therefore respectfully requests that the Examiner reconsider and withdraw all presently outstanding rejections. It is believed that a full and complete response has been made to the outstanding Office Action, and as such, the present application is in condition for allowance. Thus, prompt and favorable consideration of this amendment is respectfully requested. If the Examiner believes that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at (248) 641-1600.

Respectfully submitted,

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By:   
Thomas J. Krul  
Reg. No. 46,842

HARNESS, DICKEY & PIERCE, P.L.C.  
P.O. Box 828  
Bloomfield Hills, Michigan 48303  
(248) 641-1600

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